

The opinion in support of the decision being entered today was not written for publication in a law journal and is not binding precedent of the Board.

Paper No. 21

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte RYUICHI YOSHIDA

Appeal No. 2001-1481
Application No. 09/088,976

ON BRIEF

Before KRASS, RUGGIERO and BARRY, Administrative Patent Judges.
KRASS, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the final rejection of claims 1-4, all of the pending claims.

The invention pertains to a driving control apparatus and method. In particular, the waveform of a voltage applied to a piezoelectric transducer is controlled, resulting in control of an electrification period of time and an electrification start

time of a high speed electrifying circuit and a low speed electrifying circuit of a driving pulse generating means. With such control, a voltage waveform can be changed while an object is moving in a single direction, thereby reducing the degree of movement of the object as the object approaches a target position.

Representative independent claim 1 is reproduced as follows:

1. A driving apparatus comprising:

an electromechanical transducer which can extend and contract in a predetermined direction, said transducer having a first end and a second end in the predetermined direction;

a first member connected to the first end of said transducer;

a driving frictional member connected to the second end of said transducer;

a second member frictionally coupled with said driving frictional member;

a driving pulse generating means including a high-speed electrifying circuit and a low-speed electrifying circuit, said driving pulse generating means being connected to said electromechanical transducer; and

a controller which is capable of controlling an electrification period of time and an electrification start time of said high-speed electrifying circuit and said low-speed electrifying circuit of said driving pulse generating means.

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The examiner relies on the following reference:

Saito et al. [Saito] 5,225,941 Jul. 6, 1993

Claims 1, 2 and 4 stand rejected under 35 U.S.C. 102(b) as anticipated by Saito.

Claim 3 stands rejected under 35 U.S.C. 103 as unpatentable over Saito.

Reference is made to the briefs and answer for the respective positions of appellant and the examiner.

OPINION

We AFFIRM-IN-PART.

Under 35 U.S.C. 102(b), a reference must disclose, explicitly or implicitly, every limitation of the claimed invention. Glaxo Inc. v. Novopharm Ltd., 52 F.3d 1043, 1047, 34 USPQ2d 1565, 1567 (Fed. Cir.), cert. Denied, 516 U.S. 988 (1995).

It is the examiner's position that Saito discloses each and every element of the subject matter of claims 1, 2 and 4.

Taking claim 1, we agree that Saito discloses a driving apparatus comprising an electromechanical transducer 12 that

extends and contracts in a predetermined direction (along driving rod 17) and has a first end and a second end in the predetermined direction. There is also a first member connected to the first end of the transducer and a driving frictional member connected to the second end of the transducer. Saito also discloses the claimed second member frictionally coupled with the driving frictional member and there is a driving pulse generating means. Saito also has a high speed electrifying circuit and a low speed electrifying circuit in order to enable a speed of expansion of the transducer different from the speed of contraction thereof.

The point of contention between the examiner and the appellant is in the last clause of the claim:

a controller which is capable of controlling an electrification period of time and an electrification start time of said high-speed electrifying circuit and said low-speed electrifying circuit of said driving pulse generating means.

In independent method claim 4, the language in contention is that the transducer is electrified by a low-speed charging or discharging during a first period of time and the transducer is electrified by high-speed charging or discharging during a second period of time and

"wherein the start time of the second period of time from the start time of the first specified time is changed based on

the first period of time."

In order to support these explicit claim limitations, the examiner points to Figures 3(A) and 3(B) of Saito, declaring that the controller 20, 30

can set a low-speed electrification period of time to be a first period of time (fig. 3B, rise time) and can set a period of time from a low-speed electrification start time to a high-speed electrification start time to be a second period of time (fig. 3B, fall time) wherein said controller (20, 30), for a second driving speed, can set (fig. 3A, rise time) the low-speed electrification period of time to be shorter than the first period of time and can set the period of time from the low-speed electrification start time to the high-speed electrification start time to be shorter than the second period (falling edge, figure 3A) of time; and wherein said second driving speed is lower than said first driving speed [answer-pages 2-3].

It is true that Saito uses a driving circuit for applying a voltage to the transducer so as to make the speed of expansion of the transducer different from the speed of contraction. It is also true that Figures 3(A) and 3(B) of Saito show waveforms of driving pulses applied to the transducer wherein 3(A) relates to rapid expansion and 3(B) relates to contraction. Saito is disclosing that the transducer element 12 has a voltage waveform applied to it in order to move a lens barrel 1 in a leftward or rightward direction. In one direction, the speed of expansion is used and it will be different than the speed of contraction in

the other direction.

Thus, as broadly set forth in instant claim 1, Saito clearly shows a controller which controls an electrification period of time (the width of one pulse in Figure 3(A)) and an electrification start time (the beginning of the pulse in Figure 3(A) of Saito) of the high-speed electrifying circuit (Figure 3(A)-expansion) and the low-speed electrifying circuit (Figure 3(B)-contraction).

Since claim 1 recites nothing about changing time periods or about relative lengths of periods of time between low-speed and high-speed electrification periods of time, we find that Saito does, indeed, disclose the instant claimed subject matter.

However, when it comes to instant claim 2, we find nothing in Saito about setting a low-speed electrification period of time to be a first period of time and a period of time from a low-speed electrification start time to a high-speed electrification start time to be at a second period of time, for a first driving speed, and wherein for a second driving speed, the low-speed electrification period of time can be set shorter than the first period of time and can set the period of time from the low-speed electrification start time to the high-speed electrification

start time to be shorter than the second period of time.

With regard to independent claim 4, we find nothing in Saito about a start time period of a second period of time from the start time of a first specified time being changed based on the first period of time.

There is no indication in Saito that the degree of movement of the lens barrel may be varied as it approaches a target position. As explained by appellant, at page 4 of the reply brief, the "pairs of waveforms of the Saito patent are for moving the object in opposite directions, not for manipulation of rise and fall times, and certainly not for varying the degree of movement of the object in each of several steps of movement of the object in the same direction as achieved by the present invention." While we agree with this statement as a distinguishing feature of the instant *disclosed* invention, we do not find any language in instant claim 1 which brings out this distinguishing feature of the instant invention. However, we find that this feature is brought out, albeit somewhat broadly, in the last paragraph of independent claim 4.

Accordingly, since we find that each and every limitation of instant claim 1, as broadly claimed, is disclosed by Saito, but

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we find that each and every limitation of instant claims 2 and 4 is not disclosed or suggested by Saito, we will sustain the rejection of claim 1 under 35 U.S.C. 102(b) but we will not sustain the rejection of claims 2 and 4 under 35 U.S.C. 102(b). Since claim 3 depends from claim 2, we also will not sustain the rejection of claim 3 under 35 U.S.C. 103.

The examiner's decision is affirmed-in-part.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED-IN-PART

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Administrative Patent Judge)	
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